

Alternative 5 - Bridge/Elevator over the MBTA Rail Line

This option proposes a bridge over the existing rail line near West Concord Station. The elevator option was eliminated from further evaluation following the July 13th meeting where the MBTA representative stated they would not accept or approve the elevator option. The MBTA will not accept the responsibility for maintaining an elevator system and voiced concerns over trail users being trapped if there was a power outage. Since no parking in the MBTA lot can be lost, the Town would need to work with the Concord Park facility in order to accommodate the trail. There is an eight (8) foot to nine (9) foot gap between the edge of the MBTA lot and the edge of the Concord Park. The MBTA parking lot and Concord Park are separated by a fence. Concord Park has four "utility boxes" enclosed by stockade fencing. The fencing is approximately eight (8) feet away from the edge of commuter parking lot.

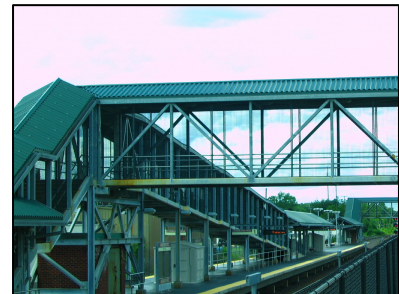


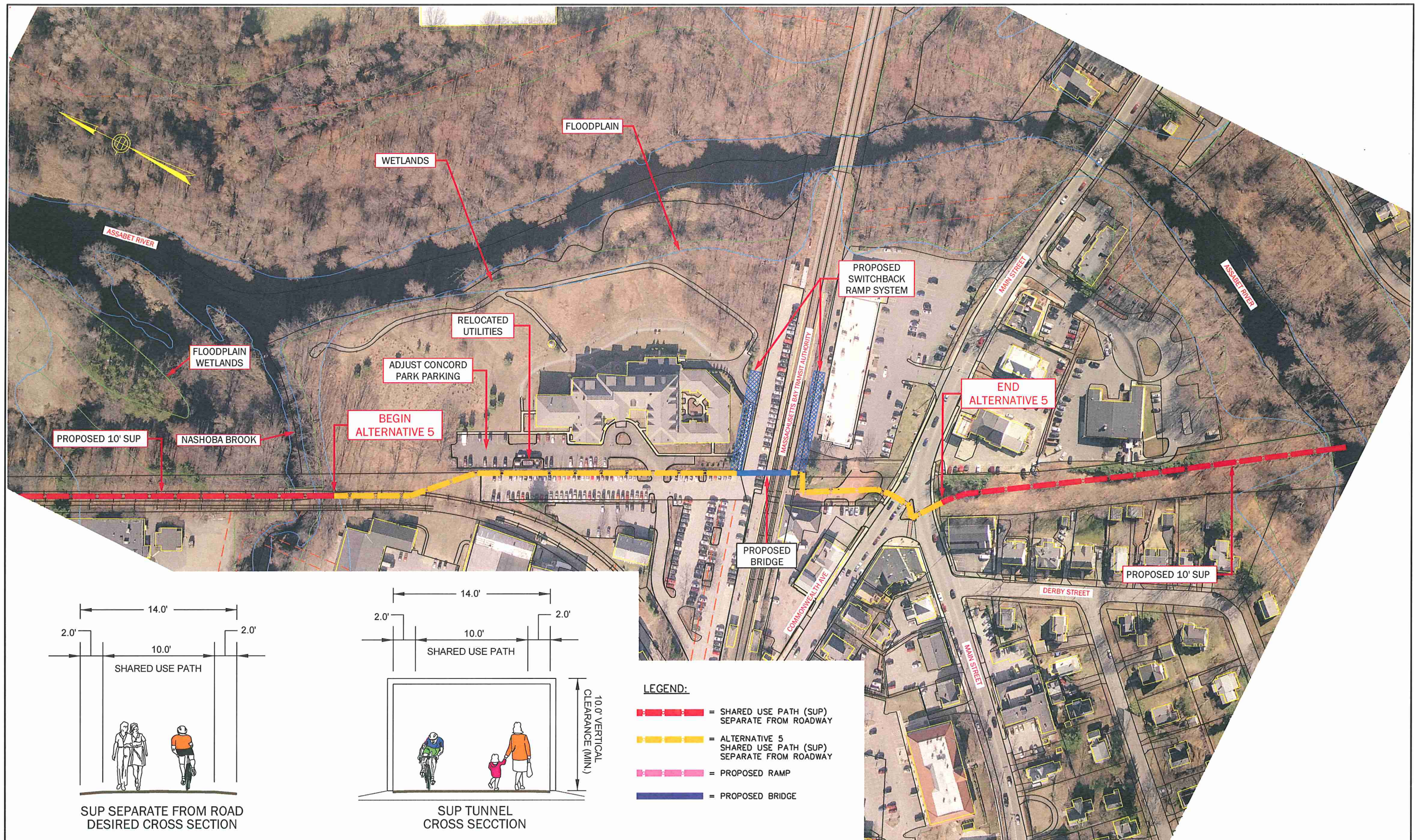
As stated earlier, the *Guide* and AASHTO require a ten (10) foot trail with two (2) foot graded shoulders and a three (3) foot clearance to any obstruction. Ideally, the trail section through this area should be twenty (20) feet in width. MassDOT may permit some exceptions to this design with explanation and communication. Since the gap between the parking lots is not sufficient for the trail, one or both of the parking lots will require adjustment and parking spaces may be lost. If this area were utilized for a portion of the trail, it is likely that the removal and resetting of the "utility boxes" would be required. This alternative may also result in increasing impervious area on the VOA Concord Assisted Living, Inc. property. It would be GPI's recommendation to propose fencing or an alternate barrier to separate the trail from the MBTA parking lot to prevent trail users from utilizing the existing rail crossing in the parking lot at Union Station and possibly the Concord Park parking lot to keep trail users off the property.

Once the trail approaches the tracks, it would take a 90° turn prior to reaching the MBTA Commuter Parking area. In order to reach the required minimum 18 foot clearance over the tracks and meet the 5% maximum grade requirements, the ramps would need to be approximately 360 feet in length. In order to accommodate 360 feet, a switchback ramp system would be required between the Concord Park facility and the MBTA Commuter Parking Lot requiring trail users to dismount their



bicycles. At the narrowest point, there is just over 34 feet between the Concord Park facility and the parking lot. There are also several plantings, some fencing and a rear access drive to Concord Park. This would require additional right-of-way from VOA Concord Assisted Living, Inc. and result in the loss of the ability to use their rear access drive. The ramp system would be laid out parallel to the parking lot, head easterly for approximately 180 feet before taking a 180° turn and traveling 180 feet in a westerly direction to reach the required 18 foot clearance. A bridge structure would then carry the trail users over the tracks and the parking area requiring right-of-way from both EOTC and the MBTA. See Figure 10 on the following page.





ALTERNATIVE 5 - CONCEPTUAL PLAN
BRIDGE OVER THE MBTA RAIL LINE
CONCORD, MA

FIGURE 10

SCALE: 1" = 80'

Once across the tracks, there is insufficient space between the rail line and Main Street for the ramp to reach existing ground without a switchback ramp system. This ramp system would need to be placed behind the West Concord Shopping Plaza Buildings and would require right-of-way from A&D Real Estate LLC. There is approximately 25 feet between the back of the buildings and the fence line. This would no longer allow use of this paved area behind the buildings for loading or unloading by the business owners.

Once the ramp reached existing ground, the trail would be routed through Concord Station to the existing crosswalk and traffic light in front of the 99 Restaurant. As mentioned earlier, it would be GPI's recommendation to make intersection modifications to minimize crossing distances and times. The reconfiguration of the intersection to a more traditional "T" intersection with a single crossing of Main Street would accomplish this goal. This would require right-of-way from Boston Gas Company and EOTC.



Alternative 5 Summary

EVALUATION CRITERIA

Effectiveness

Although this option does get trail users safely across the rail line, avid trail users may avoid following this route. With an extensive switch back ramp system, trail users may seek a more direct route. This route would be through the MBTA parking lot and the existing crossing. If this were fenced off preventing this movement, they may still travel along the fencing until they are permitted back into the lot at the driveway.

Although signing can be proposed requiring bicyclists to dismount their bikes and walk them, it will be extremely difficult to enforce without constant monitoring, warnings and possibly enforcement such as police warnings, tickets and fines.

Short-term and Long-term Reliability

If maintained this alternative does present a reliable alternative for crossing the MBTA rail line.

This alternative may not be reliable as far as compliance. As stated, a switch back ramp system will require trail users to dismount and walk their bikes. Although signs would be posted, trail users may not dismount their bikes.

Short-term and Long-term Maintenance Costs

The maintenance costs mentioned earlier in this report apply to this alternative also. The annual maintenance cost for a trail is approximately \$1,500/mile. The long-term paving cost would be approximately \$80,000/mile the first time and \$130,000/mile the second time.

It should also be emphasized that structures must be inspected on a recurring basis. Although this inspection should occur yearly, studies have shown the average inspection interval is four years. Bridges could be constructed with galvanized steel to eliminate the need for periodic painting. However, bridge structures would require periodic maintenance to repair galvanized coating failures, leaking joints, and miscellaneous repairs to chipped walking surfaces or

damaged protective screens. Additionally, any lighting or security cameras within the bridge would require periodic replacement.

Difficulty in Implementing

This alternative may require a Design Exception since it does not meet the design standards required with respect to sight distance. This would entail the preparation of a Design Exception Report and approval by the Design Exceptions Committee. It would require discussion and/or meetings with both the AAB/ADA Coordinator and the Bicycle/Pedestrian Accommodation Engineer at Mass DOT. At this time, it is unknown whether or not this option would be approved by MassDOT. In discussions with MassDOT regarding this report, they had indicated that they would need a formal submission in order to evaluate any alternative and make any decisions. The cost of this alternative would also weigh in heavily on MassDOT's decision.

Although the MBTA did voice concerns with a bridge option, they have allowed it. MBTA service cannot be suspended making construction more difficult.

This option would require right-of-way from Concord Park, right-of-way from the MBTA to cross over their rail line, right-of-way from Boston Gas Company and right-of-way from EOTC.

With federal funds being allocated towards the construction of the BFRT, a Categorical Exclusion (CE) Checklist would be required. Since work will be proposed within the Riverfront Area of Nashoba Brook, a Notice of Intent must be filed with the Concord Natural Resources Commission. It is possible that an Environmental Notification Form (ENF) would also be required assuming that this would be constructed as part of the Concord BFRT and not independently. It should be noted that these permits will be required regardless of this alternative.

Cost to Design and Implement

The design cost for Alternative 5 would be between \$500,000.00 and \$600,000.00.

The construction cost of this ramp and bridge option could range from \$5 to \$7 million making the total construction cost for this Alternative between \$6 and \$8 million.

Risk to Public Safety

Rail-Trail Maintenance & Operation published by the Rails to Trails Conservancy Northeast Regional Office states that approximately a quarter of constructed trails of the 100 trails surveyed reported illegal activities unique to bridges and tunnels including climbing and jumping from bridges, graffiti and vandalism. This alternative does remove the potential for trail user/motor vehicle impact except at the existing traffic signal and crosswalk on Main Street in front of the 99 Restaurant. Switch back ramps do create a potentially hazardous situation for trail users if they do not dismount their bikes.

Vehicular Impacts

This alternative would put trail users in contact with motor vehicles at the existing traffic signal and crosswalk on Main Street. The parking lot at Concord Park would require adjusting in order to accommodate the trail.

Benefits to the Community

This alternative would provide a continuous, direct route for the BFRT and direct trail users to the West Concord businesses and the MBTA Commuter Rail Station.

Timeliness to Implement

Design of a bridge would require extensive MassDOT and MBTA review.

The "utility boxes" at Concord Park would require relocation and the parking lot would need to be re-laid out to accommodate the same number of parking spaces that exist today. Working with Concord Park to come to an agreement may prolong the design process.

This alternative would require right-of-way from VOA Concord Assisted Living, Inc., A&D Real Estate LLC, Boston Gas Company and EOTC.

Assuming the design and construction is completed as part of the BFRT Phase 2C and the abutters are amenable, the design could be completed within 24 to 30 months. The construction would take approximately 30 to 36 months.

Context Sensitive Aesthetics

The ramp on the northern side of the tracks would block the side of the facility and the facility would not longer have use of the access drive. The view from the facility would essentially be destroyed.

This alternative would also place a very large structure with switch back ramps in the center of West Concord detracting from the setting the Town wishes to maintain. Below are some renderings showing an MBTA structure in West Concord. Although they depict an elevator system, they are useful in demonstrating the scale and look of a structure over the tracks.

